

## **Executive Order VR-204-L IOM Section 4: Veeder-Root ISD Alarm Troubleshooting Summary**

Due to the number of hanging hardware and vapor processor configurations available for use with the VST Phase II EVR Balance system, this section of the IOM consists of the following tables. The content of each table differs based on the type of processor and hanging hardware installed:

- Table 1: ISD Alarm Troubleshooting Summary for Facilities Equipped with VST ECS Membrane
- Table 2: ISD Alarm Troubleshooting Summary for Facilities Equipped with Veeder-Root Vapor Polisher
- Table 3: ISD Alarm Troubleshooting Summary for Facilities Equipped with FFS Healy Clean Air Separator
- Table 4: ISD Alarm Troubleshooting Summary for Facilities Equipped with Hirt VCS-100 Thermal Oxidizer
- Table 5: Alarms Associated with Veeder-Root Wireless ISD Components

**Table 1: ISD Alarm Troubleshooting Summary for Facilities Equipped with VST ECS Membrane**

Displayed Message	ISD Monitoring Category	Light Indicator	Description	Suggested Troubleshooting <sup>1</sup>
ISD VAPOR LEAKAGE WARN	Containment	Yellow	Containment system leaks at 2 times the TP-201.3 standard.	<ul style="list-style-type: none"> <li>Exhibit 4</li> <li>TP-201.3 (or equivalent test procedure)</li> </ul>
ISD VAPOR LEAKAGE FAIL <sup>2</sup>	Containment	Red	8 <sup>th</sup> Consecutive Failure of Pressure Integrity (Vapor Leak) Test	
ISD GROSS PRESSURE WARN	Containment	Yellow	95 <sup>th</sup> percentile of 7-days' ullage pressure exceeds 1.3 IWC.	<ul style="list-style-type: none"> <li>Exhibit 9</li> <li>Exhibit 10</li> </ul>
ISD GROSS PRESSURE FAIL <sup>2</sup>	Containment	Red	8 <sup>th</sup> Consecutive Failure of Gross Containment Pressure Test	
ISD DEGRD PRESSURE WARN	Containment	Yellow	75 <sup>th</sup> percentile of 30-days' ullage pressure exceeds 0.3 IWC.	
ISD DEGRD PRESSURE FAIL <sup>2</sup>	Containment	Red	31 <sup>st</sup> Consecutive Failure of Degradation Pressure Test	
FLOW COLLECT WARN	Collection	Yellow	Vapor collection flow performance is less than 50%.	<ul style="list-style-type: none"> <li>Exhibit 5</li> <li>Exhibit 6</li> <li>Exhibit 17</li> <li>TP-201.4 (or equivalent test procedure)</li> </ul>
FLOW COLLECT FAIL <sup>2</sup>	Collection	Red	2 <sup>nd</sup> Consecutive Failure of Vapor Collection Flow Performance Monitoring Test	
VP EMISSION WARN <sup>3,4</sup>	Processor	Yellow	Mass emission exceeded the certified threshold.	<ul style="list-style-type: none"> <li>Exhibit 8</li> <li>Exhibit 9</li> </ul>
VP EMISSION FAIL <sup>3,4</sup>	Processor	Red	2 <sup>nd</sup> Consecutive Mass emission test failure.	

Displayed Message	ISD Monitoring Category	Light Indicator	Description	Suggested Troubleshooting <sup>1</sup>
VP DUTY CYCLE WARN <sup>3</sup>	Processor	Yellow	Duty cycle exceeds 18 hours per day or 75% of 24 hours.	<ul style="list-style-type: none"> <li>PMC Setup Procedure</li> <li>Exhibit 4</li> <li>Exhibit 9</li> <li>Exhibit 10</li> <li>TP-201.3 (or equivalent test procedure)</li> </ul>
VP DUTY CYCLE FAIL	Processor	Red	2 <sup>nd</sup> Consecutive Duty Cycle Test Failure.	
ISD SENSOR OUT WARN	Self-Test	Yellow	Failure of Sensor Self-Test	<ul style="list-style-type: none"> <li>Confirm ISD sensor &amp; module installation / communication per VR 204 IOM Section 12, Chapter 2</li> </ul>
ISD SENSOR OUT FAIL	Self-Test	Red	8 <sup>th</sup> Consecutive Failure of Sensor Self-Test	
ISD SETUP WARN	Self-Test	Yellow	Failure of Setup Test	<ul style="list-style-type: none"> <li>Confirm EVR/ISD programming per VR 204 IOM Section 12</li> </ul>
ISD SETUP FAIL <sup>2</sup>	Self-Test	Red	8 <sup>th</sup> Consecutive Failure of Setup Test	

**Note: The alarms listed in above table will also activate an audible alarm**

<sup>1</sup>See ISD Troubleshooting Manual P/N 577013-819 found at <http://www.veeder.com/object/577013-819.html> and the VST ISD Troubleshooting Guide 9513-003 found at [http://www.vsthose.com/pdf/Troubleshooting\\_Guide\\_ECS\\_Membrane\\_Processor\\_Sept\\_2010.pdf](http://www.vsthose.com/pdf/Troubleshooting_Guide_ECS_Membrane_Processor_Sept_2010.pdf)

<sup>2</sup>ISD Shut Down Alarms – see Figure 48 of IOM Section 12

<sup>3</sup>This warning will result in an ISD VP Status Warn

<sup>4</sup>This failure will result in an ISD VP Status Fail

**Table 2: ISD Alarm Troubleshooting Summary for Facilities Equipped with Veeder-Root Vapor Polisher**

Displayed Message	ISD Monitoring Category	Light Indicator	Description	Suggested Troubleshooting <sup>1</sup>
ISD VAPOR LEAKAGE WARN	Containment	Yellow	Containment system leaks at 2 times the TP-201.3 standard.	<ul style="list-style-type: none"> <li>Exhibit 4</li> <li>Exhibit 11</li> <li>TP-201.3 (or equivalent test procedure)</li> </ul>
ISD VAPOR LEAKAGE FAIL <sup>2</sup>	Containment	Red	8 <sup>th</sup> Consecutive Failure of Pressure Integrity (Vapor Leak) Test	
ISD GROSS PRESSURE WARN	Containment	Yellow	95 <sup>th</sup> percentile of 7-days' ullage pressure exceeds 1.3 IWC.	<ul style="list-style-type: none"> <li>Exhibit 10</li> <li>Exhibit 11</li> </ul>
ISD GROSS PRESSURE FAIL <sup>2</sup>	Containment	Red	8 <sup>th</sup> Consecutive Failure of Gross Containment Pressure Test	
ISD DEGRD PRESSURE WARN	Containment	Yellow	75 <sup>th</sup> percentile of 30-days' ullage pressure exceeds 0.3 IWC.	
ISD DEGRD PRESSURE FAIL <sup>2</sup>	Containment	Red	31 <sup>st</sup> Consecutive Failure of Degradation Pressure Test	
FLOW COLLECT WARN	Collection	Yellow	Vapor collection flow performance is less than 50%.	<ul style="list-style-type: none"> <li>Exhibit 5</li> <li>Exhibit 6</li> <li>Exhibit 17</li> <li>TP-201.4 (or equivalent test procedure)</li> </ul>
FLOW COLLECT FAIL <sup>2</sup>	Collection	Red	2 <sup>nd</sup> Consecutive Failure of Vapor Collection Flow Performance Monitoring Test	
VP EMISSION WARN <sup>3,4</sup>	Processor	Yellow	Mass emission exceeded the certified threshold.	<ul style="list-style-type: none"> <li>Exhibit 11</li> <li>Exhibit 12</li> </ul>
VP EMISSION FAIL <sup>3,4</sup>	Processor	Red	2 <sup>nd</sup> Consecutive Mass emission test failure.	

Displayed Message	ISD Monitoring Category	Light Indicator	Description	Suggested Troubleshooting <sup>1</sup>
ISD SENSOR OUT WARN	Self-Test	Yellow	Failure of Sensor Self-Test	<ul style="list-style-type: none"> <li>Confirm ISD sensor &amp; module installation / communication per VR 204 IOM Section 12, Chapter 2</li> </ul>
ISD SENSOR OUT FAIL	Self-Test	Red	8 <sup>th</sup> Consecutive Failure of Sensor Self-Test	
ISD SETUP WARN	Self-Test	Yellow	Failure of Setup Test	<ul style="list-style-type: none"> <li>Confirm EVR/ISD programming per VR 204 IOM Section 12</li> </ul>
ISD SETUP FAIL <sup>2</sup>	Self-Test	Red	8 <sup>th</sup> Consecutive Failure of Setup Test	

**Note: The alarms listed in above table will also activate an audible alarm**

<sup>1</sup>See ISD Troubleshooting Manual P/N 577013-819 at <http://www.veeder.com/object/577013-819.html>

<sup>2</sup>ISD Shut Down Alarms - see Figure 48 of IOM Section 12

<sup>3</sup>This warning will result in an ISD VP Status Warn

<sup>4</sup>This failure will result in an ISD VP Status Fail

**Table 3: ISD Alarm Troubleshooting Summary for Facilities Equipped with FFS Healy Clean Air Separator**

Displayed Message	ISD Monitoring Category	Light Indicator	Description	Suggested Troubleshooting <sup>1</sup>
ISD VAPOR LEAKAGE WARN	Containment	Yellow	Containment system leaks at 2 times the TP-201.3 standard.	<ul style="list-style-type: none"> <li>Exhibit 4</li> <li>Exhibit 14</li> <li>TP-201.3 (or equivalent test procedure)</li> </ul>
ISD VAPOR LEAKAGE FAIL <sup>2</sup>	Containment	Red	8 <sup>th</sup> Consecutive Failure of Pressure Integrity (Vapor Leak) Test	
ISD GROSS PRESSURE WARN	Containment	Yellow	95 <sup>th</sup> percentile of 7-days' ullage pressure exceeds 1.3 IWC.	<ul style="list-style-type: none"> <li>Are ball valves for the Clean Air Separator in the correct position per Exhibit 2?</li> <li>Exhibit 10</li> </ul>
ISD GROSS PRESSURE FAIL <sup>2</sup>	Containment	Red	8 <sup>th</sup> Consecutive Failure of Gross Containment Pressure Test	
ISD DEGRD PRESSURE WARN	Containment	Yellow	75 <sup>th</sup> percentile of 30-days' ullage pressure exceeds 0.3 IWC.	
ISD DEGRD PRESSURE FAIL <sup>2</sup>	Containment	Red	31 <sup>st</sup> Consecutive Failure of Degradation Pressure Test	
FLOW COLLECT WARN	Collection	Yellow	Vapor collection flow performance is less than 50%.	<ul style="list-style-type: none"> <li>Exhibit 5</li> <li>Exhibit 6</li> <li>Exhibit 17</li> <li>TP-201.4 (or equivalent test procedure)</li> </ul>
FLOW COLLECT FAIL <sup>2</sup>	Collection	Red	2 <sup>nd</sup> Consecutive Failure of Vapor Collection Flow Performance Monitoring Test	
ISD SENSOR OUT WARN	Self-Test	Yellow	Failure of Sensor Self-Test	<ul style="list-style-type: none"> <li>Confirm ISD sensor &amp; module installation / communication per VR 204 IOM Section 12, Chapter 2</li> </ul>
ISD SENSOR OUT FAIL	Self-Test	Red	8 <sup>th</sup> Consecutive Failure of Sensor Self-Test	

Displayed Message	ISD Monitoring Category	Light Indicator	Description	Suggested Troubleshooting <sup>1</sup>
ISD SETUP WARN	Self-Test	Yellow	Failure of Setup Test	<ul style="list-style-type: none"><li>Confirm EVR/ISD programming per VR 204 IOM Section 12</li></ul>
ISD SETUP FAIL <sup>2</sup>	Self-Test	Red	8 <sup>th</sup> Consecutive Failure of Setup Test	

**Note: The alarms listed in above table will also activate an audible alarm**

<sup>1</sup>See ISD Troubleshooting Manual P/N 577013-819 at <http://www.veeder.com/object/577013-819.html>

<sup>2</sup>ISD Shut Down Alarms - see Figure 48 of IOM Section 12

**Table 4: ISD Alarm Troubleshooting Summary for Facilities Equipped with Hirt VCS-100 Thermal Oxidizer**

Displayed Message	ISD Monitoring Category	Light Indicator	Description	Suggested Troubleshooting <sup>1</sup>
ISD VAPOR LEAKAGE WARN	Containment	Yellow	Containment system leaks at 2 times the TP-201.3 standard.	<ul style="list-style-type: none"> <li>Exhibit 4</li> <li>TP-201.3 (or equivalent test procedure)</li> </ul>
ISD VAPOR LEAKAGE FAIL <sup>2</sup>	Containment	Red	8 <sup>th</sup> Consecutive Failure of Pressure Integrity (Vapor Leak) Test	
ISD GROSS PRESSURE WARN	Containment	Yellow	95 <sup>th</sup> percentile of 7-days' ullage pressure exceeds 1.3 IWC.	<ul style="list-style-type: none"> <li>Exhibit 10</li> <li>Exhibit 13</li> </ul>
ISD GROSS PRESSURE FAIL <sup>2</sup>	Containment	Red	8 <sup>th</sup> Consecutive Failure of Gross Containment Pressure Test	
ISD DEGRD PRESSURE WARN	Containment	Yellow	75 <sup>th</sup> percentile of 30-days' ullage pressure exceeds 0.3 IWC.	
ISD DEGRD PRESSURE FAIL <sup>2</sup>	Containment	Red	31 <sup>st</sup> Consecutive Failure of Degradation Pressure Test	
FLOW COLLECT WARN	Collection	Yellow	Vapor collection flow performance is less than 50%.	<ul style="list-style-type: none"> <li>Exhibit 5</li> <li>Exhibit 6</li> <li>Exhibit 17</li> <li>TP-201.4 (or equivalent test procedure)</li> </ul>
FLOW COLLECT FAIL <sup>2</sup>	Collection	Red	2 <sup>nd</sup> Consecutive Failure of Vapor Collection Flow Performance Monitoring Test	
ISD VP PRESSURE WARN	Processor	Yellow	90 <sup>th</sup> percentile of 1-day ullage pressure exceeds 2.3 IWC.	<ul style="list-style-type: none"> <li>Exhibit 13</li> </ul>
ISD VP PRESSURE FAIL <sup>2</sup>	Processor	Red	2 <sup>nd</sup> Consecutive Failure of Vapor Processor Overpressure Test	



Displayed Message	ISD Monitoring Category	Light Indicator	Description	Suggested Troubleshooting <sup>1</sup>
ISD VP STATUS WARN	Processor	Yellow	Triggered by an active "Extern Input Alarm" due to power loss, communication loss, or processor run time > 62 consecutive minutes	<ul style="list-style-type: none"> <li>Exhibit 4</li> <li>TP-201.3 (or equivalent test procedure)</li> <li>Confirm proper installation of Hirt VCS 100 per VR 204 IOM Section 12, Chapter 2</li> </ul>
ISD SENSOR OUT WARN	Self-Test	Yellow	Failure of Sensor Self-Test	<ul style="list-style-type: none"> <li>Confirm ISD sensor &amp; module installation / communication per VR 204 IOM Section 12, Chapter 2</li> </ul>
ISD SENSOR OUT FAIL	Self-Test	Red	8 <sup>th</sup> Consecutive Failure of Sensor Self-Test	
ISD SETUP WARN	Self-Test	Yellow	Failure of Setup Test	<ul style="list-style-type: none"> <li>Confirm EVR/ISD programming per VR 204 IOM Section 12</li> </ul>
ISD SETUP FAIL <sup>2</sup>	Self-Test	Red	8 <sup>th</sup> Consecutive Failure of Setup Test	

**Note: The alarms listed in above table will also activate an audible alarm**

<sup>1</sup>See ISD Troubleshooting Manual P/N 577013-819 at <http://www.veeder.com/object/577013-819.html>

<sup>2</sup>ISD Shut Down Alarms - see figure 48 of IOM Section 12

**Table 5: Alarms Associated with Veeder-Root Wireless Components**

Displayed Message	Device	Light Indicator	Description	Suggested Troubleshooting
Battery Warning	Vapor Valve, Vapor Flow Meter	Yellow	Device transmitter reports battery status as “Replace” for 24 hours.	Remove and replace battery.

**Note:** The alarm listed in above table will also activate an audible alarm